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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,442	05/15/2006	Masatada Numano	050395-0373	7856
20277 7590 12/12/2007 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			EXAMINER LIN, ING HOUR	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			12/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,442	NUMANO ET AL.	
	Examiner	Art Unit	
	Ing-Hour Lin	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/30/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-14 are rejected under 35 U.S.C. 103(a) as obvious over Li et al (US 6,173,755) in view of Nanba et al (US 5,697,425).

Li et al (col. 2, lines 50+) teach the claimed casting nozzle 20 or 120 for transferring molten metal such as aluminum alloy from a tundish 11 or 111 into a moveable mold (continuous slab caster 10, 110) including dual or twin belt horizontal slab casters and the like or with **roll casters** (col. 6, lines 62+) and the claimed casting method by using the nozzle for producing an aluminum alloy slab shown in Fig. 10 having extremely smooth with minimal liquation and other defects such as laps, ripples and coldshuts, wherein the casting nozzle is

attached with an intermediate layer liner 26, 126 for preventing unwanted gap or interlace in order to prevent backflow of molten metal; and with a top layer liner of graphite 27, 127 in the form of flexible foil having a thickness of 0.01 inch (0.254 mm) solid under the name GRAFOIL. Further, based on the quality of cast aluminum alloy, it is reasonable to say the graphite having physical properties such as high strength, heat conductivity and density for the purpose of reducing friction between the nozzle and moveable mold.

Li et al fail to teach the use of a pair of rolls for the moveable mold in the **roll casters**. However, Nanba et al (col. 14, lines 31+) teach the use of a pair of rolls 11 for the moveable mold in the **roll casters** such as a twin roll type continuous strip caster 12 for the purpose of effectively casting molten metal into strip casting (col. 14, lines 60+). It would have been obvious to one having ordinary skill in the art to provide Li et al the use of a pair of rolls for the moveable mold in the **roll casters** as taught by Nanba et al in order to effectively cast molten metal into strip casting ((Nanba et al, col. 14, lines 60+).

4. Claims 1-14 are rejected under 35 U.S.C. 103(a) as obvious over Li et al (US 6,173,755) in view of in view of Nanba et al (US 5,697,425) as applied to claims 1-14 and further in view of Fiel et al.

Li et al in view of Nanba et al fail to teach the use of high strength graphite such as isotropic graphite having the particular claimed values of physical properties such as high strength, heat conductivity, and density. However, Fiel et al (col. 2, lines 37+) teach the use of thin high strength graphite sheet of isotropic graphite having the claimed particular values of physical properties such as high strength, heat conductivity, and density in making protective

liners for the purpose of promoting wear resistance of the protective liner (col. 4, lines 13+). It would have been obvious to one having ordinary skill in the art to provide Li et al in view of Nanba et al the use of isotropic graphite for a protective liner as taught by Fiel et al in order to enhance the wear resistance property needed for the casting nozzle (Fiel et al, col. 4, lines 13+).

Response to Arguments

5. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection. Applicant argued that Li et al fail to teach the use of a pair of rolls in the amended independent claims 1 and 2. However, Nanba et al (col. 14, lines 31+) teach the use of a pair of rolls 11 for the moveable mold in the **roll casters** such as a twin roll type continuous strip caster 12 for the purpose of effectively casting molten metal into strip casting (col. 14, lines 60+). It would have been obvious to one having ordinary skill in the art to provide Li et al the use of a pair of rolls for the moveable mold in the **roll casters** as taught by Nanba et al in order to effectively cast molten metal into strip casting ((Nanba et al, col. 14, lines 60+).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jonathan Johnson can be reached on (571) 272-1177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

I-H Lin

I.-H. Lin

12/7/07



JONATHAN JOHNSON
SUPERVISORY PATENT EXAMINER